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ART 34 AMDT

Express Mail No.: E 52324317 US  
English Translation of PCT Applic.

1/PRTS

Docket: P30412

DESCRIPTION

10/526119  
STOI REG FCT/PTC 28 FEB 2005

Sealing profile

5 The invention relates to a sealing profile in accordance with the preamble of Claim 1.

Sealing profiles are known in a variety of forms and are in the form of either a solid or tubular profile, wherein the cross-sectional form and/or the material are chosen with the proviso that good adaptability to irregularities as well as to dimensional inaccuracies of  
10 the gap to be sealed and sufficient restoration capabilities are ensured.

The sealing profile remains under elastic stress until it has fulfilled its sealing function, when it is pressed against the boundaries that are opposite one another and define the gap to be sealed. This pressing force in the region of the boundaries or sealing surfaces  
15 is to be uniform over time under the respective operating conditions so that the sealing profile will deform back to its original shape during the transfer into an inactive unstressed state by converting the previously stored elastic energy.

Further essential properties for a sealing profile relate to surface properties, in particular  
20 suitability for connection to other materials which is important for example in motor vehicle sealing profiles. Finally, the sealing profile has to be efficiently producible on the basis of the chosen material and must retain its properties, that are essential for fulfilling the sealing function, almost unaltered in a temperature range of at least -40°C to approximately +110°C.

The above requirements are only partly achieved by the currently known sealing profiles, in particular for tubular profiles.

On the basis thereof, it is the object of the invention to create a sealing profile of the type mentioned in the introduction with regard to simple efficient production, sufficient restoration capability and such surface properties in the region of the outer surfaces which permit simple possibilities for applying a coating, such as an anti-friction lacquer, fiber coating or the like. This object is achieved for a sealing profile of the generic type by means of the features of the characterizing part of Claim 1.

It follows from this that, for the invention, it is essential that the tubular profile consists of two tubular profiles that are disposed one inside the other and can be connected to each other. The basic principle of the subject matter of the invention resides in the fact that the two tubular profiles are to be chosen with the proviso that they each fulfill, in addition to a connecting capability, essential properties of the sealing profile such as, for example, restoration capability on the one hand and surface properties on the other hand. Consequently, in addition to optimizing the two tubular profiles in terms of construction and material, this permits possibilities for efficiently assembling the sealing profile and good adaptability to mechanical and thermal property requirements.

The sealing profile in accordance with the invention is to be seen as a product which can be further processed to the greatest possible extent since its outer surface properties permit different possibilities for coating and adhering with other materials.

The features of Claims 2 and 3 relate to the precise construction of the tubular profile combination in accordance with the invention, in particular to the properties allocated to the individual profiles. It is hereby provided that the resilient restoring force of the sealing profile is essentially applied by the inner tubular profile, whereas the outer tubular profile

essentially has a sealing function since this, owing to its soft nature, permits precise adaptation to dimensional inaccuracies and inequalities in the region of the boundary surfaces defining the sealing gap. The pressing force necessary for maintaining the seal is applied by the elastic deformation of the inner tubular profile occurring during the sealing phase.

The features of Claim 4 relate to an advantageous, specific construction of the sealing profile in terms of material. In accordance therewith, the inner tubular profile consists of silicone whereas the outer tubular profile consists of a sponge rubber or soft rubber or of another elastomer such as for example an EDPM (ethylene propylene diene terpolymer) or a TPE (thermoplastic elastomer) or the like. This material combination also permits an efficient production possibility during co-extrusion.

The features of Claims 5 and 6 relate to alternative possibilities of coating the outer surface of the outer tubular profile. In this regard, the coating can be fiber coating, application of a lacquer e.g. an anti-friction lacquer or also a film that has been applied in a hot melt coating method.

In accordance with the features of Claims 7 and 8, the sealing profile in accordance with the invention can selectively be in an annular structure or as a wound product. In particular, in the case of the preferred material combination of the two tubular profiles, there is also the possibility of a subsequent, end-side adhesion process, in order to produce an annular structure.

It can be seen from the above embodiments that in the sealing profile in accordance with the invention a product is produced that fulfills all of the mechanical and thermal boundary conditions, can be used to the greatest possible flexible extent and can be used in particular in the automotive industry.

CLAIMS

1. Sealing profile (1) for sealing a gap between the outer boundary of a flat,  
movable first part and the inner boundary of an opening in a fixedly disposed  
5 second part that can be closed by the first part, for example for sealing the gap  
between a motor vehicle door and its allocated opening of a motor vehicle  
construction, having a strip-like adhesive region (2) that is intended to connect  
to one of the two boundaries, having a tube-like construction surrounding a  
hollow space (3), characterized in that the tube-like construction consists of at  
10 least two tubular profiles (4, 5) that are disposed one inside the other and can be  
connected to each other.
2. Sealing profile (1) according to Claim 1, characterized by tubular profiles (4, 5)  
that are created in different ways in terms of material, wherein the inner tubular  
15 profile (5) is chosen according to its resilient restoring force and wherein the  
outer tubular profile (4) is chosen according to its surface properties, in  
particular its ability to be coated.
3. Sealing profile (1) according to Claim 1 or 2, characterized in that in comparison  
20 to the inner tubular profile (5), the outer tubular profile (4) has a softer nature  
and a lower restoring force.
4. Sealing profile according to any one of Claims 1 to 3, characterized in that the  
inner tubular profile (5) consists of silicone and the outer tubular profile consists  
25 of a sponge rubber or soft rubber or of another elastomer such as, for example,  
an EPDM or a TPE or the like, and in that the two tubular profiles are profiles  
that can be connected to the sealing profile (1) during co-extrusion in an in-line  
process.
- 30 5. Sealing profile (1) according to any one of the preceding Claims 1 to 4,  
characterized by a coating such as an anti-friction lacquer or fiber coating etc.  
that is

applied to the exterior of the outer tubular profile (4) and at least partly covers this outer surface.

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6. Sealing profile (1) according to any one of Claims 1 to 4, characterized by a film that is connected to the exterior of the outer tubular profile (4), is applied in a hot melt coating method and forms an outer coating.
7. Sealing profile (1) according to any one of the preceding Claims 2 to 6, characterized by a construction as a wound profile.
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8. Sealing profile according to any one of the preceding Claims 2 to 6, characterized by a closed, annular construction.